U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS

HEARING

EPA's FY 2007 Science and Technology Budget Proposal
Thursday, March 16, 2006
10:00 a.m. to 12:00 noon
2318 Rayburn House Office Building

1. Purpose

On Thursday, March 16, 2006 at 10:00 a.m. the House Science Committee's Subcommittee on Environment, Technology, and Standards will hold a hearing to examine the Environmental Protection Agency's (EPA) fiscal year 2007 (FY07) budget request for Science and Technology (S&T).

2. Witnesses

Dr. George Gray, Assistant Administrator for the Office of Research and Development and Science Advisor, U.S. Environmental Protection Agency.

Dr. M. Granger Morgan, Chair, EPA's Science Advisory Board (SAB); Lord Chair Professor in Engineering and Professor and Department Head, Department of Engineering and Public Policy, Carnegie Mellon University.

Dr. Don Langenberg, Vice-Chair, the National Council for Science and the Environment; Chancellor Emeritus of the University System of Maryland; Professor of Physics and Electrical Engineering, University of Maryland; former President, American Association for the Advancement of Science.

Mr. Jeff Ruch, Executive Director, Public Employees for Environmental Responsibility.

3. Overarching Questions

1. Is the overall level of Science and Technology (S&T) funding appropriate and are the priorities balanced among core research, mission-driven research, emerging issues, and homeland security?

2. In particular, what are the consequences of the past and proposed reductions to ecological research, sustainability research, climate change research, graduate fellowships, and technology verification programs?

4. Background

EPA's overall FY07 budget request is $7.3 billion. The S&T portion of the budget request is $788 million or a bit more than 10 percent of the total. The remainder of the budget is divided into several accounts. One account funds the agency's air, water, waste, toxics and pesticides programs, one supports clean up of hazardous waste sites under the Superfund program, and another provides grants to states to support EPA's Clean Water Act programs.

Nearly $528 million (72 percent) of S&T funding is for EPA's Office of Research and Development (ORD), which is the primary research arm of the agency. ORD also receives a small amount of funding from the agency's Superfund program for research on hazardous waste remediation. Typically, most of the remaining S&T funds go to the Office of Air and Radiation, and a smaller amount to the Office of Water. The agency's FY07 budget request proposes a larger share of S&T funds than in past years for the Office of Water's homeland security activities.

ORD conducts and sponsors both fundamental research in environmental science and more targeted research that informs EPA's regulatory programs. For example, ORD develops the scientific risk information for the agency's Integrated Risk Information System (IRIS), a database about human health effects from chemicals in the environment. It is used by EPA programs and states to help determine hazardous waste site clean up levels and drinking water standards. In air quality, ORD develops the scientific underpinning for EPA's air quality standards in areas such as particulate matter and ozone. And ORD also investigates newer environmental questions such as the environmental implications and applications of nanotechnology.

To carry out these responsibilities, ORD both conducts intramural research at EPA's laboratories and supports fellowships and research at colleges and universities through the Science to Achieve Results (STAR) grant program.

5. Budget Highlights

- The FY07 budget requests $788 million for S&T at EPA, a $58 million (8 percent) increase from the FY06 enacted level of $730 million. However, that figure includes an accounting change, which transfers $62 million from the Environment Programs and Management account to the S&T account. The accounting change is intended to more accurately allocate facility rents to the appropriate account and does not allow for any increased spending on programs. Excluding the accounting change, the S&T budget request is $726 million, slightly less than a 1 percent decrease from FY06 enacted level, and $71 million (12 percent) below the peak funding in FY04.

- The FY07 request would decrease the budget to $557 million; $38 million (6 percent) less than the FY06 enacted level. About $20 million of that reduction is the result of the Administration removing Congressional earmarks from the FY06 base.

- If enacted, the FY07 request for ORD would be its lowest funding level since FY00 and $90 million (14 percent) less than its peak funding level of $646.5 million in FY04.

- The FY07 S&T request includes nearly $9 million for research on the environmental implications of nanotechnology, an 80 percent increase over the FY06 enacted level. At a recent Committee hearing on nanotechnology, industry and environmental community witnesses called for a substantial increase in the federal R&D investment in environmental implications of nanotechnology.

- The FY07 S&T request includes $92 million for research related to homeland security, an 83 percent increase over the FY06 enacted level. This represents 12 percent of the S&T account. Almost 50 percent of the request ($45 million) is for the Office of Water's Water Sentinel pilot program, which would receive an increase of more than 500 percent above the FY 06 enacted level of $8.1 million. The program (described in more detail below) is designed to help protect the nation's drinking water from intentional contamination.

- The FY07 S&T request includes $79 million for Ecosystem Research, $7 million (or 8 percent) below the FY06 enacted level, and $28 million (26 percent) below the FY04 enacted level. Almost all of the FY07 reduction ($5 million) would be taken from the Environmental Monitoring Assessment Program, (EMAP), which supports states' measurements of water quality conditions and ecosystem health.

- ORD's Sustainability Research program (formerly called the Pollution Prevention Research program) would receive $21 million in FY07, $8 million (or 23 percent) less than the FY06 enacted level, and $16 million (or 43 percent) less than FY05.

- The budget request would reduce funding for the Science to Achieve Results (STAR) Graduate Fellowships from the FY06 level of $9.3 million to $5.9 millions, a $3.4 million (or 37 percent) decrease.

- The FY07 budget proposes two reductions in research related to climate change. The largest is a $6 million (33 percent) reduction in S&T funding for the Clean Automotive Technology program in the Office of Air and Radiation. This follows a 10 percent reduction between FY06 and FY05. The FY07 budget also proposes a reduction in ORD's global change research program of $1.2 million from the FY 06 enacted level of $19 million. This program focuses on understanding the consequences of global change, particularly climate variability and change, for human health and ecosystems. The proposed reduction follows a previous reduction of $1 million between FY06 and FY05.

- The FY07 budget proposes the elimination of the Superfund Innovative Technology Evaluation (SITE) Program ($3.7 million) and the near elimination of funding for the Environmental Technology Verification (ETV) program ($2.9

million). Both programs support the development and implementation of innovative environmental technologies. The SITE program was created in the Superfund statute.

6. Key Issues

The overall spending by EPA's research programs has been declining for several years. The Administration argues that the agency's research is adequately funded given overall constraints on the Federal budget and that EPA S&T funds have been focused on emerging priorities, while programs that are not as pressing or effective have been scaled back. Critics of the budget, including EPA's Science Advisory Board, have argued that EPA's core research programs are being eroded in ways that will limit understanding of the environment and hamper the agency's ability to formulate sound policies. Both viewpoints will be represented at the hearing.

The information below describes programs that have received some of the most significant cuts or increases.

Ecological Research. ORD's ecological research aims to assess ecosystem conditions and trends, diagnose impairments, forecast ecosystem vulnerability and, ultimately, restore degraded ecosystems. The proposed FY 07 budget represents an 8 percent reduction from the FY06 enacted level and a 26 percent reduction since FY04. The proposed FY07 cut would be taken primarily in the Environmental Monitoring Assessment Program (EMAP), which would be reduced by $5 million, a cut that would leave the program with about half of what it had received in FY04. The Office of Management and Budget (OMB) gave the program a low rating, concluding that it had shown a "lack of progress in developing adequate performance measures." Others have come to different conclusions. EPA's Board of Scientific Counselors rated the program highly, and its supporters argue that the program has helped develop ways to measure water and ecosystem quality along the nation's coastal areas and in the mid-Atlantic region.

Sustainability research. ORD's Sustainability Research program (formerly called the Pollution Prevention Research program) would receive an $8 million or 23 percent decrease in FY07 from the FY06 enacted level of $29 million, and would result in a 43 percent decline since FY05. Included in the FY07 proposed reductions is a cut to the agency's green chemistry research by 23 percent to $5.1 million from the FY06 enacted level of $6.6 million. The Science Committee approved a bill last March, sponsored by Rep. Gingrey, seeking to increase the focus on green chemistry research across the government.

Another proposed reduction in sustainability is for research on pollution prevention tools, including lifecycle assessment, that is, research on how to reduce pollution throughout the lifecycle of a product from manufacturing through use and disposal. It is unclear whether the cut would have an affect on lifecycle assessments related to nanotechonology, which both industry and environmental groups have sought.

The sustainability programs have not performed well in OMB reviews, which try to determine if programs have clear quantitative goals and whether those goals are being met.

Climate change research. The FY07 budget proposes a cut of $6 million (33 percent) in FY07 for the Clean Automatic Technology program. EPA says the budget reflects the phase out of a multi-year federal investment in hydraulic hybrid technology development as the private sector picks up the technologies.

The FY07 budget also proposes a reduction in ORD's global change research program of $1.2 million from the FY06 enacted level of $19 million. The proposed reduction would reduce investment in computer modeling of climate change impacts on watersheds, coral reefs, and sewer systems in this program that is closely aligned with the government-wide Climate Change Science Program (CCSP). EPA's global change budget was stable for a number of years until a $1 million reduction in FY06. EPA's budget documents do not provide a rationale for the cut. Government-wide climate research is flat-funded in the FY07 budget at about $1.7 billion.

Homeland security. EPA's homeland security responsibilities include setting cleanup standards for remediation after an attack, protecting the nation's water infrastructure and ensuring that the nation has adequate laboratory capacity. Homeland security research competes for funding with the more traditional research responsibilities of the agency. The Administration argues this is a necessary setting of priorities in an era of constrained funding. Others, including the EPA Science Advisory Board, are concerned that homeland security research is eroding the agency's ability to conduct research in other important areas, and argue that the homeland research should be funded at least in part with "new money."

Water Sentinel. Run by the agency's Office of Water, with some support from ORD, Water Sentinel is a pilot program to develop a drinking water monitoring and surveillance system to protect against, and respond more quickly to an attack on the nation's water supply. EPA's FY07 request of $45 million from the S&T account is a 500 percent increase over the FY06 enacted level of $8.1 million and would expand the pilot program to five more cities.

While the knowledge gained from Water Sentinel could be critical in the event of a chemical or biological attack on the nation's drinking water systems, a number of questions remain unanswered. For example, has the pilot program been subject to peer review to ensure that it is properly focused? Is EPA appropriately involving state and local governments in carrying out the pilot program? Does EPA have adequate plans for turning Water Sentinel into an operational program?

Moreover, there are also questions related to funding. Water Sentinel is entirely funded out of the S&T account, although aspects of it are more like an operational program than

like traditional research. Operations cost significantly more than research and therefore cut into the funding available for other, more typical research programs.

STAR Grants. EPA created the Science to Achieve Results (STAR) grant program in 1995 and program was funded at just over $100 million per year between the late 1990s and 2002. The program was recommended by an outside advisory panel convened in 1992 and that recommendation has been reaffirmed in National Academy of Sciences reports in 2000 and 2003. The point in all these reports was that EPA should increase its funding of students and research in academia to draw on a wider range of research. The bulk of STAR funds have been allocated to competitive research grants in targeted mission-critical areas, with a smaller portion reserved for graduate fellowships and for exploratory research on the next generation of environmental challenges.

The STAR program provides both research grants and graduate student fellowships. Since its peak funding level of just over $102 million in FY02, the grants program has declined every year. The $65 million FY07 proposal is 5 percent below FY06 levels and 36 percent reduction below peak funding levels. The agency has proposed eliminating or cutting the fellowships every year for the last five years. The FY07 budget proposes reducing the fellowships by $3.4 million or 37 percent below the FY06 enacted level of $9.3 million.

EPA apparently just views the cuts as a question of priorities as it continues to cite extramural research as an important aspect of its research portfolio. For example, EPA references the value of the STAR program in its testimony for this hearing.

Nanotechnology. The *21st Century Nanotechnology Research and Development Act* (P.L. 108-153), which originated in the Science Committee, created an interagency nanotechnology research program that includes EPA, which focuses particularly on the environmental and safety implications of nanotechnology. As it has done in other emerging areas of science, the agency turned to its STAR extramural grants program to jump-start its research in FY04 - FY06. In FY07, ORD proposes nearly doubling its funding from $5 million to $9 million, a response to calls from industry and environmental groups for increased research on potential environmental consequences of nanotechnology.

Technology programs. Section 311 of the Superfund Act establishes the SITE program and directs EPA "to carry out a program of research, evaluation, testing, development and demonstration…of innovative treatment technologies." (Sec 311 (b)(1)). After significantly downsizing the program in FY06, EPA proposes eliminating it in FY07. By all accounts, including EPA's own, the SITE program has conducted high-quality field demonstrations of remediation technologies, and there are many SITE evaluated technologies now on the market that have saved money and led to more effective remediation efforts. The rationale offered in the budget justification for terminating program is that the "Superfund program has matured."

The budget also proposes to eliminate the ETV program. ETV was created in the mid-1990s to help technology developers verify the performance of their products in areas other than remediation technologies. It was developed using SITE as a model. The FY07 request would eliminate the remaining $3 million in funding that the agency has used to partner with technology vendors to test the performance of their products. The budget would retain a minimal level of internal agency funding (less than $.1 million) and staff time for ORD staff to do quality control work with companies that wanted to support their own performance testing.

7. Witness Questions

Dr. Gray, Assistant Administrator for the Office of Research and Development and Science Advisor, Environmental Protection Agency

Please briefly summarize EPA's proposed fiscal year 2007 (FY07) Science and Technology (S&T) budget, including those programmatic areas that would receive significant increases or decreases from FY06 and the rationale for these proposed changes. In addition, please answer the following questions:

1. Given that the funding levels in the FY07 proposed budget for the Office of Research and Development (ORD) are 14 percent below FY04 appropriations, what specific steps has EPA taken oven the past few years and what specific steps will it take in FY07 to ensure that these budget cuts do not affect ORD's ability to:
    a. keep up with and use the newest scientific methods;
    b. provide the most up to date scientific information for the agency's regulatory decisions; and
    c. build strong ties with the external research community and foster graduate student work in the environmental sciences.

2. What are the agency's scientific priorities in homeland security? How have those priorities been determined? Given the increasing share of the S&T budget allocated to homeland security, how are you ensuring that the agency's more traditional research programs are receiving adequate funding?

3. Why is the proposed 500 percent expansion of the Water Sentinel pilot program relying solely on S&T funding? What specific portions of the Water Sentinel program are operational and which are than research? How does the Agency plan to transition Water Sentinel to an operational program?

Dr. Morgan, Chair, Science Advisory Board (SAB), Environmental Protection Agency; Lord Chair Professor in Engineering and Professor and Department Head, Department of Engineering and Public Policy, Carnegie Mellon University.

Please describe the results of the Science Advisory Board's review of EPA's fiscal year 2007 (FY07) budget request for science and technology (S&T). In addition, please address the following questions:

1. Is the proposed overall level of S&T funding appropriate and are the priorities balanced adequately among core research, mission-driven research, emerging issues, and homeland security?

2. What impact are the recent and proposed reductions having on the ORD's ability to:

    a. keep up with and use the newest scientific methods,
    b. provide the most up-to-date scientific information for the agency's regulatory decisions, and
    c. build strong ties with the external research community and foster graduate student work in the environmental sciences?

3. Has the agency set the appropriate priorities for meeting the science needs of its homeland security responsibilities? Is the proposed allocation of 12 percent of the S&T budget to homeland security an appropriate amount? What are the consequences of this level of investment for more traditional R&D activities?

4. Should the proposed expansion of the Water Sentinel pilot program rely solely on S&T funding? Does EPA have adequate plans for transitioning Water Sentinel to an operational program?

Dr. Langenberg. Vice-Chair, the National Council for Science and the Environment. Chancellor Emeritus of the University of Maryland System; past Chancellor, University of Illinois-Chicago, former President, American Association for the Advancement of Science.

Please address the following questions:

1. From a research university perspective, what are the most important strengths and weaknesses of EPA's proposed S&T budget?

2. What impact are the recent and proposed reductions having on the ORD's ability to:

    a. keep up with and use the newest scientific methods,
    b. provide the most up-to-date scientific information for the agency's regulatory decisions, and
    c. build strong ties with the external research community and foster graduate student work in the environmental sciences?

Mr. Jeff Ruch, Executive Director, Public Employees for Environmental Responsibility (PEER)

Please answer the following questions:

1. What are the most important strengths and weaknesses of EPA's proposed Science and Technology budget?

2. What impact are the recent and proposed reductions having on the ORD's ability to:

    a. keep up with and use the newest scientific methods,
    b. provide the most up-to-date scientific information for the agency's regulatory decisions, and
    c. build strong ties with the external research community and foster graduate student work in the environmental sciences?